

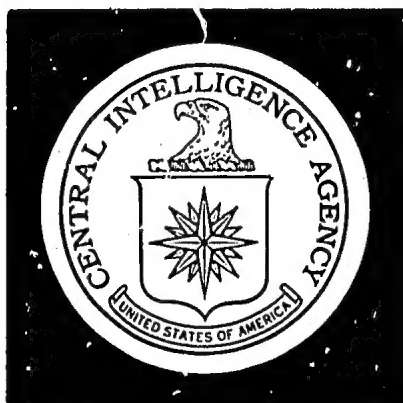
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**DIRECTORATE OF
INTELLIGENCE**

Intelligence Memorandum

North Korea: Foreign Trade As A Force For Industrialization

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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
July 1971

INTELLIGENCE MEMORANDUM

**NORTH KOREA: FOREIGN TRADE
AS A FORCE FOR INDUSTRIALIZATION**

Summary and Conclusions

1. North Korea's foreign trade has been a major force in the step-up in industrialization since 1967. Trade turnover jumped from \$450 million in 1967 to \$680 million in 1970 as increased amounts of foreign machinery were used to bolster the industrial sector. The rise in imports has outstripped the rise in exports with the result that North Korea has run a trade deficit of about \$260 million in the three-year period 1968-70. Of this deficit, about \$225 million was accumulated in trade with the USSR and reflected the renewal of Soviet credits. Imports from the Free World roughly balanced exports except for 1969, when North Korea incurred a \$40 million trade deficit primarily with West Germany, the Netherlands, and France.

2. With the aid of these accelerated imports, North Korea's gross industrial production rebounded to an average annual growth rate of 14% from 1967 through 1970 after a drop to 9% in the mid-1960s. Imports of machinery and equipment were the key items and included Soviet equipment for complete plants in the electric power and the metallurgical industries, two refrigerated fishing ships from the Netherlands, textile equipment from Japan, a semiconductor plant from Japan, and, perhaps most important, metalworking machine tools – predominantly from West Germany – which greatly enhanced the technological and productive capabilities of North Korea's machine building industry.

3. Further increases in imports will be necessary to support the ambitious industrial goals of the new Six-Year Plan (1971-76). The USSR has pledged additional help for the expansion of such major industries as petroleum, machine building, and iron and steel. Furthermore, the recent friendlier relations with Communist China have led to the extension of economic aid, which will help sustain a higher inflow of capital goods. And, finally, North Korea is looking to Japan and Western Europe for additional

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machinery and equipment to augment its industrial expansion program. Successful expansion here will depend on North Korea's continued ability to expand its exports to the Free World, which have recently been growing at an annual rate of 13% since 1968 and on the willingness of Free World countries to extend long-term credits.

DiscussionPattern of Trade

4. During the past decade, North Korea's foreign trade has reflected the state of political relations with its two giant neighbors – the USSR and Communist China – as well as the needs and capabilities of the domestic economy. Imports and exports grew steadily but slowly during the early and mid-1960s, and trade was roughly in balance. Since 1967, three factors have combined to accelerate North Korea's foreign trade – renewed Soviet credits for economic construction, the government's investment drive to achieve the goals of the lagging Seven-Year Plan which had been extended three years through 1970, and successful negotiations with Japanese and West European firms for purchases of capital goods. As Table 1 shows, trade jumped in 1968-70. Imports outdistanced exports, and large trade deficits were registered in each of the three years, reaching a cumulative total of \$260 million by the end of 1970.

5. Trade with other Communist countries, which comprises more than 80% of North Korea's trade, accounted for most of the surge in imports and thus for most of the accumulated trade deficit. The data in Table 1 show how trade with the USSR, North Korea's largest and most important trading partner, rose rapidly in 1968 after credits had been reinstated for major industrial projects. By the end of 1970 a trade deficit of about \$225 million had been accumulated with the USSR. On the other hand, trade with Communist China continued to stagnate during 1968-69 as political relations remained chilly. In 1969, relations began to improve, and trade with China showed moderate gains in 1970. Trade with Eastern Europe increased substantially after 1967, with imports and exports in rough balance.

6. Trade with the Free World took a new turn during 1968-70. In 1967, North Korea began an unprecedented drive to negotiate purchases of industrial machinery and equipment from Japan and Western Europe. These negotiations quickly bore fruit. Imports began to increase in 1968 and then nearly doubled in 1969, the peak year. In 1970, imports from Japan held steady while imports from Western Europe fell off to slightly above the 1968 level. Except for 1969, exports to the Free World roughly equalled imports. The bulge in imports in 1969, especially from West

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Table 1

North Korea: Foreign Trade, by Country a/

Million US \$

	North Korean Exports				North Korean Imports			
	1967	1968	1969	1970 <u>b/</u>	1967	1968	1969	1970 <u>b/</u>
Total	226	253	272	295	224	305	385	387
Communist	189	206	221	235	192	256	291	330
USSR	108	121	127	137	110	172	202	237
Communist China	50	45	45	50	50	45	45	50
Eastern Europe	22	32	40	40	28	36	41	40
Of which:								
Bulgaria	1	1	1	N.A.	1	1	1	N.A.
Czechoslovakia	7	7	9	11	4	4	3	5
East Germany	5	6	13	N.A.	8	9	10	N.A.
Hungary	2	2	3	4	2	3	3	3
Poland	3	9	8	10	8	12	12	9
Romania	5	6	5	N.A.	6	7	12	N.A.
Other Communist <u>c/</u>	9	9	9	9	3	3	3	3
Free World	37	47	51	60	32	49	94	57
East Asia	32	36	36	39	7	25	29	27
Of which:								
Japan	28	32	31	33	7	22	25	25
Western Europe	5	10	14	20	15	15	61	18
Of which:								
France	<u>d/</u>	1	<u>d/</u>	1	9	4	10	6
West Germany	1	2	5	11	4	8	32	9
Netherlands	2	3	2	1	1	<u>d/</u>	16	<u>d/</u>
Italy	<u>d/</u>	1	<u>d/</u>	N.A.	1	1	2	N.A.
Other Free World	1	1	2	1	10	9	4	12
Of which:								
Australia	0	0	0	0	7	9	1	4

a. The data in this table place North Korea's trade on an export f.o.b. and import c.i.f. basis. Because of rounding, components may not add to the totals shown.

b. Preliminary estimates.

c. Includes Cuba, Mongolia, North Vietnam, and Yugoslavia.

d. Less than \$500,000.

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Germany and the Netherlands, yielded a trade deficit of more than \$40 million. This deficit was financed by gold sales (\$15.9 million in 1969 and \$10.5 million in 1970), credits for two ships from the Netherlands, some commercial bills, and perhaps some drawing down of foreign currency holdings.

Commodity Composition

7. North Korea primarily exports semifinished manufactured goods (steel, pig iron, magnesite, zinc, and cement) and food products (rice, fish, apples, and tobacco). Imports feature machinery and equipment, fuels (mainly petroleum products), and finished manufactured goods that cannot be produced domestically in sufficient quantities or at all. The commodity composition of exports has not changed significantly in recent years. The commodity composition of imports, however, has changed in line with North Korea's requirements especially for fuels and machinery and equipment, and with Soviet and Chinese willingness to supply economic credits. Imports of machinery and equipment have zoomed while the other categories have remained fairly constant. (See Table 2 for the commodity composition of foreign trade and the Appendix for a detailed breakdown of trade with the USSR and the Free World.)

Economic Significance

8. The accelerated imports during 1968-70 were designed to -- and did -- improve the sagging industrial performance of the mid-1960s. 1/ Machinery and equipment accounted for three-fourths of the increase in North Korea's imports, rising from \$40 million in 1967 to \$160 million in 1969. The USSR and the Free World were the most important suppliers, with Eastern Europe and Communist China providing supplemental quantities. Preliminary data for 1970 suggest that the 1969 level was maintained, with the expansion in imports of machinery and equipment from the USSR offsetting a drop in these imports from the Free World.

9. The USSR continued to be the major foreign supplier to North Korea's industrialization program. In 1966 the USSR agreed to resume deliveries under the 1961 aid agreement; imports of machinery and equipment rose to \$47 million in 1968 and \$63 million in 1969, compared with \$20 million in 1967. The largest increase came in complete plant shipments; in 1968 these shipments regained the level of the early and mid-1960s (to \$17 million compared with \$3 million in 1967), in 1969

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Table 2

North Korea: Commodity Composition of Foreign Trade

	Million US \$					
	Imports			Exports		
	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
<i>Total</i>	224.1	305.4	384.6	225.8	253.2	271.5
Food and tobacco	47.3	33.9	26.1	34.6	30.1	39.8
Crude materials	14.1	19.9	23.2	23.0	21.0	28.0
Fuels	38.7	57.7	56.6	6.4	4.6	3.8
Chemicals	10.0	19.9	21.9	15.7	15.2	15.8
Manufactured goods	38.1	40.6	43.8	126.5	164.1	161.9
Machinery and equipment	40.4	93.8	159.8	7.4	8.1	9.4
Unidentified	35.5	39.6	53.2	12.2	10.1	12.8

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almost doubled to \$30 million, and in 1970 - to judge from official Soviet statements regarding total imports - increased further.

10. This inflow of complete plants and other machinery and equipment upgraded North Korea's industrial capacity. The 1961 Soviet aid agreement called for the supply of equipment for major projects such as the Pukchang Thermal Powerplant at Sunch'on, additions to the iron and steel complex at Ch'ongjin, and the construction of an oil refinery. Of these major projects, the Pukchang Thermal Powerplant, under construction since mid-1967, is now operating at 25%-50% of its planned 400,000 kilowatt capacity. The Ch'ongjin iron and steel complex has been expanded with the installation of blast, and possibly basic oxygen furnaces; however, there is no evidence of the large rolling mill originally planned for this complex. The oil refinery is only now under construction at Unggi; full-scale operation of the 2 million ton refinery is called for by the end of the Six-Year Plan. In spite of delays in implementing the renewed Soviet aid, sufficient industrial capacity was generated by the end of 1970 to achieve major Seven-Year Plan goals in both steel and electric power.

11. Imports from the Free World also were a part of the North Korean drive to install new industrial capacity. 2/ Imports of machinery and equipment from Japan and Western Europe rose sharply to \$67 million in 1969, more than ten times the level of 1967, and in that one year exceeded the value of such imports from the USSR. Preliminary trade data for 1970 indicate that this 1969 level was a bulge in imports in support of the Seven-Year Plan; in 1970 imports of machinery and equipment from the Free World dropped back almost to the level of 1968.

12. The most important component of the Free World machinery was the metalworking machine tools, which hit a peak level of \$35 million in 1969. West Germany supplied more than 90% of the 1969 total while Japan and Italy shipped most of the remainder. Machine tools imported from Western Europe and Japan included lathes and grinders for machining crankshafts and camshafts, gear cutting machines, copy milling machines, jig borers, and possibly some tape-controlled machine tools. These machine tool imports gave a sizable boost to North Korea's metalworking technology and improved capabilities to manufacture both military and industrial equipment. As the following tabulation shows, the machine building industry - where most machine tools are used - was able to expand production rapidly in the past few years and to exceed some of the major Seven-Year Plan goals.

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Commodity	Thousand Units			
	Estimated Production			Production Goal for 1970
	1960	1965	1970	
Machine tools	2.9	4.0	10.4	7.5
Freight cars	0.6	1.6	3.6	2.0
Trucks and buses	3.1	4.5	14.7	10.0
Tractors	3.0	4.4	13.0	17.1

13. The rise in imports of nonelectric machinery and equipment shown in Table 3 reflects, first, the purchase of six 800-horsepower marine diesel engines from France to power domestically produced naval and maritime ships. Second, as part of the program to expand textile production, North Korea purchased a \$7 million 100,000-spindle textile plant from Japan; a portion of the deliveries under this contract were made in 1969. Finally, imports of heating and cooling equipment helped expand capacity to treat materials to withstand extreme temperature ranges.

14. Imports from the Free World also raised capacity in the electronics and the fishing industries. Electronic equipment accounted for most of North Korea's imports of electric machinery during 1967-69. ^{3/} The most important single item in these deliveries was a semiconductor plant [redacted]

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[redacted] By importing plant and technology for production of integrated circuits and transistors, North Korea has substantially improved its small electronics industry. Improvement in the fishing industry resulted from the purchase of two refrigerated fishing vessels, valued at about \$13 million, from the Verolme Shipyards of the Netherlands. These two ships, each with a capacity of 7,000 tons, are the largest of this type owned by North Korea; the fishing fleet now boasts a total of ten refrigerated fish-processing ships.

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Support for the Military Forces

15. In 1965, some two years before its push in the industrial area, North Korea began to modernize its military forces under the slogan "parallel economic construction and defense building." The USSR assisted this drive by supplying about \$200 million worth of military equipment during 1966-68. Deliveries dropped in 1969 to less than \$5 million and

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Table 3
North Korea: Machinery and Equipment
Imports from the Free World

	Thousand US \$		
	1967	1968	1969
<i>Total</i>	6,298	18,205	66,605
Metalworking machine tools	222	7,670	34,967
Nonelectric machinery and equipment	2,006	3,335	10,877
Of which:			
Power generating equipment	1,235	139	3,567
Textile equipment	25	100	1,558
Heating and cooling equipment	630	897	1,313
Electric machinery and equipment	883	5,450	4,607
Of which:			
Electronic equipment	602	1,716	3,459
Transportation equipment	3,187	1,750	15,623
Unidentified	--	--	531

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were perhaps even lower in 1970. 4/ Soviet deliveries since 1965 have included MIG-21 jet fighters, SA-2 surface-to-air missile equipment, W-class submarines, Osa-class and Komar-class guided missile patrol boats, and ground force weapons and materials. Communist Chinese deliveries over the same period have amounted to about \$15 million.

Petroleum Products

16. As North Korea's industrialization and military modernization progressed, so did its requirements for petroleum products. As the tabulation shows, these imports surged ahead in 1968, continued to increase in 1969, and probably were even higher in 1970:

<u>Supplier a/</u>	<u>Thousand Metric Tons</u>			
	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
USSR	446	714	770	N.A.
Free World	Negl.	Negl.	Negl.	90

a. Communist China may have supplied small quantities of petroleum products.

During 1968-69 the USSR filled these rising needs, supplying primarily gasoline, kerosine, diesel fuel, and fuel oil. In 1970, Soviet deliveries may have held constant or even declined as North Korea began to purchase petroleum products from India and Kuwait. These latter purchases may represent a North Korean desire to diversify sources of petroleum products as well as to expand trade relations with Third World countries. With the completion of the Unggi oil refinery, scheduled for 1972, the composition of North Korea's petroleum imports will begin to change from petroleum products to crude oil.

4. *These estimates of Soviet deliveries of military equipment are derived from order-of-battle estimates for North Korea. The data on Soviet exports to North Korea suggest the possibility of a higher level of deliveries of military-related goods in 1969 (Soviet trade data for 1970 are not yet available). Soviet export data usually do not identify all of the specific commodities shipped, and it has been hypothesized that the category of unidentified commodities contains Soviet military shipments to other countries under credit or current account. Deliveries under grants are not included in Soviet trade statistics. The value of unidentified commodities shipped to North Korea was \$40 million in 1969, compared with \$9 million in 1967 and \$24 million in 1968.*

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17. Even though industrial growth in North Korea picked up with the infusion of foreign machinery and equipment, it was still below the growth rate of South Korea's industrial sector. According to the official index of gross industrial production, the North Korean annual growth rate recovered to an average of about 14% from 1967 through 1970 after a drop to 9% in the mid-1960s. By comparison, South Korea's industrial production achieved an average annual growth of 24% since 1965. (The official statistics of both countries probably overstate growth to a certain extent.) As the tabulation below shows, North Korea – even with renewed Soviet assistance – was unable to match the South's capabilities for obtaining imports of machinery and equipment, the prime resource of the industrialization programs of both countries.

	<u>Million US \$</u>				
	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
South Korea	73	172	310	533	593
North Korea	50	48	40	94	160

Trade Prospects

18. Foreign trade almost certainly will continue to play a major role in North Korea's industrialization program throughout the new Six-Year Plan (1971-76). A growth rate of 14% in gross industrial production is planned, an increase over the 12.8% reportedly achieved during the extended Seven-Year Plan. Moreover, North Korean officials have stated that the new plan may be completed one year ahead of schedule. Among the ambitious goals are the substantial expansion of capacity in electric power, metallurgy, chemicals, and machine building. Therefore, given domestic limitations in the production of machinery and equipment, a large volume of imports will be required from North Korea's trading partners.

19. As long as North Korea continues to maintain its present neutral position in the Sino-Soviet dispute, imports from the Communist world should increase. In an aid agreement signed in 1970, the USSR agreed to supply North Korea with plant equipment and technical assistance for the Six-Year Plan; key Soviet aid projects of the plan include the Unggi oil refinery, the Ch'ongjin iron and steel complex, and the Sodu-su hydroelectric powerplant. Likewise, in October 1970, China and North Korea signed agreements on long-term trade and on economic and technical

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aid for the plan period. Soviet equipment and technical assistance will still outweigh assistance from other sources. Expanded imports from China could also be an important factor. Finally, although North Korea has had problems meeting its contract obligations for exports to some of its East European allies, notably Poland and Romania, trade should continue to expand above present levels.

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20. North Korea's trade with the Free World will undoubtedly increase above the 1970 level. North Korea has expressed interest in purchasing equipment for [] industrial facilities from Japan and Western Europe. A wide range of whole plants are under consideration including a truck assembly plant, a television plant, an acrylic fiber plant, a semiconductor plant, and a petrochemical complex. To judge from recent import patterns, North Korea is likely to be interested in metalworking machine tools, some types of electronic equipment, and a variety of industrial machinery. Also, North Korea may continue to expand its interest in Free World petroleum and widen its imports of manufactured goods from Japan and Western Europe.

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21. The expansion of imports from the Free World will be limited, however, by the capability of the export industries to earn foreign exchange and by the credit restrictions of the Free World trading partners. Exports to the Free World have been growing at a rate of 13% per year since 1968. Continuation of this rate of export expansion would permit a comparable rise in imports but would not finance plant purchases of the size noted above. These purchases would require a further easing of Western credits. Moscow Narodny Bank, London, recently helped by agreeing to purchase North Korean commercial paper with a two-year maturity whereas it previously refused to guarantee bills for longer than one year. North Korea was also able in 1969 to obtain five-year credits for the two Netherlands fishing ships. []

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APPENDIX

North Korea: Commodity Composition of Trade
with the Free World and the USSR

	Thousand US \$			
	1968		1969	
	Free World	USSR	Free World	USSR
Total imports	49,039	172,222	93,015	201,554
Foodstuffs	8,285	16,052	2,472	15,626
Of which:				
Wheat and wheat flour	8,158	8,233	1,523	10,130
Refined sugar	0	7,589	0	5,302
Crude materials and edible oils	6,026	16,153	6,750	12,833
Of which:				
Cotton	0	10,683	2,000	8,209
Vegetable oils	254	2,810	189	2,657
Petroleum products and fuels	182	43,440	45	43,644
Of which:				
Petroleum products	171	25,528	45	27,388
Coke	0	4,527	0	5,513
Coal (bituminous)	0	12,879	0	10,743
Chemicals	5,509	5,423	5,617	6,542
Of which:				
Fertilizers	0	1,118	180	1,101
Organic chemicals	1,126	0	1,353	0
Medicines and pharmaceuticals	299	917	1,010	873
Manufactured goods	9,729	20,131	10,955	19,979
Of which:				
Rubber tires	251	5,409	123	4,582
Textiles and synthetic fibers	1,305	1,072	3,500	1,487
Ferroalloys	390	2,992	206	2,966
Iron and steel products	2,276	3,103	894	3,294
Aluminum	768	1,137	2,330	1,139
Timber products	644	1,832	1,160	1,773
Machinery and equipment	18,205	47,217	66,605	62,846
Of which:				
Transportation equipment	1,750	8,942	15,623	11,920
Nonelectric machinery and equipment	3,335	23,243	10,877	36,890
Electric machinery and equipment	5,450	6,186	4,607	6,393
Unspecified machinery and equipment	0	5,050	531	6,673
Metalworking machine tools	7,670	3,796	34,967	970
Unidentified	1,003	23,806	1,371	40,074

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	Thousand US \$			
	1968		1969	
	Free World	USSR	Free World	USSR
Total exports <i>a/</i>	46,914	120,888	50,923	126,554
Foodstuffs, tobacco, and beverages	2,757	19,114	2,790	27,878
Of which:				
Fish	1,938	0	1,835	0
Rice	0	8,237	0	13,720
Corn	419	0	942	0
Apples	0	5,169	0	6,889
Tobacco	0	4,080	0	3,991
Crude materials and edible oils	11,770	4,325	19,869	2,752
Of which:				
Silk	2,248	0	2,537	0
Iron ore	5,775	0	5,546	0
Other minerals and ores	875	4,303	6,212	2,617
Petroleum products and fuels	1,419	0	785	0
Of which:				
Coal	1,419	0	785	0
Chemicals	363	5,316	182	3,769
Of which:				
Calcium carbide	294	1,516	180	1,144
Manufactures	29,584	85,088	24,383	82,798
Of which:				
Pig iron	12,590	4,470	7,405	3,392
Rolled steel products	3,772	40,661	1,694	29,801
Zinc	7,239	1,136	7,544	4,019
Lead	2,186	5,777	6,077	984
Other nonferrous metals	2,912	127	1,650	154
Magnesite powder	37	11,890	0	15,431
Cement	0	4,307	0	5,354
Other construction materials	0	4,112	0	4,102
Clothing	0	6,321	0	10,629
Machinery and equipment	0	2,654	26	5,531
Unidentified	1,021	4,391	2,888	3,829

a. Because of rounding, components may not add to the totals shown.